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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/742,255	12/20/2000	Christopher Chedgey	10734-003-999	8068

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EXAMINER	
KENDALL, CHUCK O	

ART UNIT	PAPER NUMBER
2192	

DATE MAILED: 08/10/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/742,255	CHEDGEY ET AL.	
	Examiner	Art Unit	
	Chuck O. Kendall	2192	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *23 May 2006*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-9 and 11 - 21* is/are pending in the application.

4a) Of the above claim(s) *10* is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-9 and 11 - 21* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

1. This action is in response to the application filed 05/23/06.

2. Claim 10 has been cancelled and claims 1 – 9, and 11 – 14 have been amended, and claims 15 – 21 have been added.

Claim Rejections - 35 USC § 102

3. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

4. Claim 1 is rejected under 35 U.S.C. 102(b) as being unpatentable over Koza et al. USPN 5,490,246.

Regarding claim 1, Koza anticipates a software analysis tool comprising:

means for converting software entities and their relationships into a graph having a structure of nodes interconnected by edges (FIG. 16, and all associated text),

said graph further comprising a tree comprising a plurality of subtrees, each said subtree representing one or more nodes in the graph, the relationship among the plurality of subtrees representing the edges among nodes in the graph (FIG. 16);

and an editor comprising means for allowing a user to edit the graph; wherein the software entities comprise software program code (26:19 – 25, see editing operation).

Claim Rejections - 35 USC § 103

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

6. Claim 11 – 19 are rejected under 35 U.S.C. 103(a) as being unpatentable over Koza et al. US 5,742,738 in view of Brotsky.

Regarding claim 11, Koza discloses said graph further comprising a tree comprising a plurality of subtrees, each said subtree, representing one or more nodes in the graph, and substrees representing the edges as well as replace the displayed node with one or more embedded child nodes in response to the user action (FIG. 16, and all associated text). Koza doesn't expressly disclose a node class for instantiating node objects in memory representing aspects of an analyzed system as nodes of a graph; a connection class for instantiating connection objects in memory representing dependencies between aspects of an analyzed system; an edge class for instantiating edge objects representing collections of one or more connections or edges.

However, Brotsky discloses an object oriented graph representation language which uses nodes classes (17: 5 – 10), a connection class (19:45 – 65, see Transducers and class) and an edge class (17: 12, see graphics operator class).

Therefore it would have been obvious to one of ordinary skill in the art at the time the invention was made to combine Koza and Brotsky because, it would enable implementing it in an object oriented environment.

Regarding claim 12, the dependency analysis system of claim 11, further comprising:

at least one subclass of the node class, the subclass being specific to a particular category of system (Koza, FIG. 16, see 1620).

Regarding claim 13, dependency analysis system recorded on a computer-readable medium, comprising:

a graph model data structure for storing dependency information derived through the abstraction layer from third-party tools (koza, FIG. 16, and all associated text);

a rendering system for providing a plurality of views of the graph model data providing a uniform interface to third-party analysis tools (Koza, 20:15 – 40);

a tree comprising a plurality of subtrees, each said subtree, representing one or more nodes in the graph, and substrees representing the edges as well as replace the displayed node with one or more embedded child nodes in response to the user action (Koza, 20:15 – 40).

Regarding claim 15, as in claim wherein a one to many mapping from a first directed graph to a second directed graph, wherein every element in the first directed

graph corresponds to exactly one element in the second directed graph, and any element in the second directed graph corresponds to one or more elements in the first directed graph (Koza, 9:60 – 10:20, see corresponding entity and crossover).

Regarding claim 16, see rationale in claim 15 above.

Regarding claim 17, as in claim 1 a meta node and edge representing a first child graph, said first child graph further comprising a meta node and edge representing a second child graph (Koza, FIG. 24, and all associated text).

Regarding claim 18, see rationale in claim 15 above.

Regarding claim 19, see rationale in claim 15 above.

7. Claims 20 and 21 rejected under 35 U.S.C. 103(a) as being unpatentable over Koza et al. US 5,742,738 in view of Hoppe US 6,108006

Regarding claim 20, Koza discloses a system for representing the relationship among elements of a complex system comprising:

a tree comprising a plurality of subtrees each said subtree comprising a root node and one or more nodes (FIG. 16); and

a relationship among the root nodes of said subtrees, said relationship including a dependency relationship (FIG. 16). Koza doesn't expressly disclose where for each pair of said subtrees not sharing any common node there exists a relationship between the root nodes of said pair of subtrees, if there exists a relationship between a node in

one subtree of said pair of subtrees and a node in the other subtree of said pair of subtrees.

However, Hoppe in an analogous art and similar configuration discloses relationship between separate trees (vertex hierarchy), see (FIG. 18, and all associated text) and refinement dependency between them (3:35 – 40). Therefore it would have been obvious to one of ordinary skill in the art at the time the invention was made to combine Koza and Hoppe because it would make runtime evaluation of the set of selective refinement criteria faster (Hoppe, 3:35 – 40).

Regarding claim 21, the system of claim 20, wherein the complex system is a software comprising a plurality of software entities and the relationship includes reference dependency among the software entities (Koza, FIG. 16).

8. Claims 2 & 3 are rejected under 35 U.S.C. 103(a) as being unpatentable over Koza et al. USPN 5,490,246 as applied in claim 1, in view of Guy E. Blelloch Provably Efficient Scheduling for Languages with Fine-Grained Parallelism, Published 1999.

Regarding claim 2, Koza discloses all the claimed limitations as applied in claim 1. Koza doesn't explicitly disclose bi-directionally folding and unfolding a graph between meta and child levels. However, Blelloch does disclose this feature (Pg, 311,5.4.2 see bi-directional and siblings for child levels, also refer to pg. 301, 4.1. for unfolding). Therefore it would have been obvious to one of ordinary skill in the art at the time the invention was made to combine Koza with Blelloch, because folding and

unfolding operations are a general practice in the graphics field and makes the program more modifiable.

Regarding claims 3, a software analysis tool as claimed in claim 1 or 2, wherein the editor comprises means for automatically generating fresh graph layouts after manipulation (Koza, 26:20 - 40).

9. Claims 4 – 9 are rejected under 35 U.S.C. 103(a) as being unpatentable over Koza et al. USPN 5,490,246 as applied in claim 1, in view of Perttunen USPN 6,359,635.

Regarding claim 4, Koza discloses all the claimed limitations as disclosed in claim 1 as well as comprising software program code, as discussed above in claim 1. Koza, doesn't explicitly disclose wherein the conversion means comprises a plurality of back-ends, each being associated with an aspect of a software system. However, Perttumen discloses a backend (21:58-60 for backend see database). Therefore it would have been obvious to one of ordinary skill in the art at the time the invention was made to combine Koza with Perttumen because, it would allow the system to be able to retrieve or store information and hence make it more efficient.

Regarding claim 5, a software analysis tool as claimed in claim 4, wherein each back-end comprises means for converting the entities and the relationships of the associated aspect into nodes and edges of the graph (Koza, 25: 60 – 65).

Regarding claim 6, a software analysis tool as claimed in claims 4, wherein the back-ends are associated with managers (Pertumen, 21:58-60).

Regarding claim 7, a software analysis tool as claimed in claim 6, wherein the managers comprise means for routing commands between the editor and the back-ends (Pertumen, 21:58-60, also see Koza for editor 26:19 – 25, see editing operation).

Regarding claim 8, a software analysis tool as claimed in claims 6, wherein each manager is associated with a group of back-ends associated with a group of back-ends (Pertumen, 21:58 – 60).

Regarding claim 9, a software analysis tool as claimed in claim 8, wherein the back-ends associated with a particular manager share a common interface and set of operations (Pertumen, FIG. 17, 156).

Response to Arguments

10. Applicant's arguments with respect to claims 1 – 9, & 11 - 21 have been considered but are moot in view of the new ground(s) of rejection.

Correspondence information

11. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Chuck Kendall whose telephone number is 571-272-3698. The examiner can normally be reached on 10:00 am - 6:30pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Tuan Dam can be reached on 571-272-3695. The fax phone number for the organization where this application or proceeding is assigned is **571-273-8300**.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Ck.

Chuck Kendall 8/07/06